

# Notice of Allowability

Application No.

09/507,064

Examiner

Neveen Abel-Jalil

Applicant(s)

OH, CHANG-HO

Art Unit

2165

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/23/04.
2. ☒ The allowed claim(s) is/are 1-28, 31-38, 40-44, 46-51, 53-55.
3. ☒ The drawings filed on 18 February 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

*C. Rones*  
**CHARLES RONES**  
**PRIMARY EXAMINER**

## **DETAILED ACTION**

### ***Transitional After Final Practice***

1. Since this application is eligible for the transitional procedure of 37 CFR 1.129(a), and the fee set forth in 37 CFR 1.17(r) has been timely paid, the finality of the previous Office action is hereby withdrawn pursuant to 37 CFR 1.129(a). Applicant's telephone request for an Examiner's amendment submission after final on December 14, 2004 and amendment filed on July 23, 2004 has been entered.

## **EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Do Te Kim (Attorney of Record) on December 16, 2004.

### **Amendments to the Claims:**

3. This listing of the claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

4. The application has been amended as follows:

Claim 1: (Original) A method for creating a complete logical database model by combining related database elements defined in different model segments created by different users, each of the database elements representing a database table or a column of a database table, a remote database element in a different model segment represented in a current model segment by creating in the current model segment an external database element that represents the remote database element, the method comprising:

- under control of a first user, creating a first database element in a first model segment;
- under control of a second user, creating a second database element in a second model segment;
- creating an external first database element in the second model segment, the external first database element representing the first database element;
- displaying in the second model segment visual indications of the second and external first database elements; and
- creating a relationship in the second model segment between the external first database element and the second database element by using the displayed visual indications; and
- creating the complete logical database model by, adding to the complete logical database model the database elements from the first and second model segments;
- substituting the first database element for the external first database element in the complete logical database model; and
- creating the relationship in the complete logical database model between the second database element and the substituted first database element, so that the substitution of the first

database element for the external first database element in the complete logical model modifies the relationship in the complete logical database model so that it exists between the first model element and the second model element.

Claim 2 (Original): The method of claim 1 including:

under the control of the first user, creating a third database element in the first model segment;

displaying visual indications of the first and third database element in the first model segment; and

creating a second relationship in the first model segment between the first database element and the third database element by using the displayed visual indications of the first and third database elements;

adding the third database element and the second relationship to the complete logical database model; and

maintaining in the complete logical database model the second relationship between the first and third database elements.

Claim 3 (Original): The method of claim 1 wherein the first and second database elements each represent a table; and wherein the relationship indicates that attributes of the tables are related.

Claim 4 (Original): The method of claim 1 wherein the first database element represents a table, wherein the second database element represents a attribute, and wherein the relationship indicates that the second database element is an attribute of the first database element.

Claim 5 (Original): The method of claim 1 wherein the second database element represents a table, wherein the first database element represents a attribute, and wherein the relationship indicates that the first database element is an attribute of the second database element.

Claim 6 (Original): The method of claim 1 wherein the complete logical database model is an Entity-Relationship diagram that is syntactically and semantically correct such that a relational database schema can be generated from the diagram.

Claim 7 (Original): The method of claim 6 wherein neither the first model segment nor the second model segment alone is syntactically and semantically correct such that a relational database schema can be generated from either of the model segments alone.

Claim 8 (currently amended): A method embodied on a computer readable medium for assembling a complete model that includes model elements from different model segments, the method comprising:

receiving an indication of a first model segment that contains a description of a first model element having a first structure, a reference to a second model element whose description

is contained in a second model segment and that has a second structure, and an indication of a relationship between the first and second model elements that represents an alteration of at

least one of the first and second structures; and

creating the complete model by, retrieving the description of the second model element from the second model segment; and

replacing the reference to the second model element with the retrieved description.

Claim 9 (Original): The method of claim 8 including, after the creating of the complete model, determining whether the indicated alteration of the model element structures produces a valid model.

Claim 10 (Original): The method of claim 8 wherein the replacing of the reference to the second model element with the retrieved description includes altering at least one of the first and second structures as indicated.

Claim 11 (Original): The method of claim 8 wherein the complete model is a database model specified using an Entity-Relationship format, and wherein at least one of the model elements represents a table.

Claim 12 (Original): The method of claim 8 wherein the complete model is a database model, and wherein at least one of the model elements represents an object.

Claim 13 (Original): The method of claim 8 wherein the complete model is a network model, and wherein at least one of the model elements represents a network node.

Claim 14 (Original): The method of claim 8 wherein the complete model is specified using a Unified Modeling Language format, and wherein at least one of the model elements represents an object.

Claim 15 (Original): The method of claim 8 wherein the complete model is specified using an Object-Role Modeling format.

Claim 16 (Original): The method of claim 8 wherein the second structure includes second model element attributes, and wherein the indicated alteration is to add the first model element as an attribute of the second model element.

Claim 17 (Original): The method of claim 8 wherein the first structure includes first model element attributes, and wherein the indicated alteration is to add the second model element as an attribute of the first model element.

Claim 18 (Original): The method of claim 8 wherein the first structure includes first model element attributes, wherein the second structure includes second model element attributes, and wherein the indicated alteration is to add the attributes of the first model element as attributes of the second model element.

Claim 19 (Original): The method of claim 8 wherein the first structure includes first model element attributes, wherein the second structure includes second model element attributes, and wherein the indicated alteration is to add the attributes of the second model element as attributes of the first model element.

Claim 20 (Original): The method of claim 8 wherein the model elements and the relationship each have a visual representation that are displayed to a user.

Claim 21 (Original): The method of claim 8 including creating the model elements and the relationship before the receiving of the indication.

Claim 22 (Original): The method of claim 8 wherein the first model element is created by a first user, and wherein the second model element is created by a second user.

Claim 23 (Original): The method of claim 8 wherein the first and second model segments are distinct files.

Claim 24 (Original): The method of claim 8 wherein at least one of the first and second model segments is part of a pre-defined library of model elements.



Claim 25 (Original): A computer-readable medium whose contents cause a computer system to assemble a complete model that includes model elements from different model segments by performing the method comprising:

receiving an indication of a first model segment that contains a description of a first model element having a first structure, a reference to a second model element whose description is contained in a second model segment and that has a second structure, and an indication of a relationship between the first and second model elements that represents an alteration of at least one of the first and second structures; and

creating the complete model by, retrieving the description of the second model element from the second model segment; and

placing in the complete model the description of the first model element from the first model segment, the retrieved description from the segment model segment, and the indication of the relationship between the descriptions of the first and second model elements.

Claim 26 (Original): The computer-readable medium of claim 25 wherein the contents further cause the computer system to verify completeness of the complete model.

Claim 27 (Original): The computer-readable medium of claim 25 wherein the contents further cause the computer system to, under control of a user, create a description of a first model element in a model segment, create in the model segment a reference to a second model element whose description is contained in another model segment, and create an indication of a relationship between the first model element and the reference.

Claims 29-30 (canceled)

Claim 30 (Original): The computer-readable medium of claim 25 wherein the computer-readable medium is a memory of a computer system.

Claim 31 (Original): A computer system for assembling a complete model that includes model elements from different model segments, comprising:

a user input device able to receive an indication of a first model segment that contains a description of a first model element having a first structure, that contains a reference to a second model element whose description is contained in a second model segment and that has a second structure, and that contains an indication of a relationship between the first and second model elements that represents an alteration of at least one of the first and second structures; and

a model creator able to create the complete model by retrieving the description of the second model element from the second model segment and replacing the reference to the second model element with the retrieved description.

Claim 32 (Original): The computer system of claim 31 wherein the model creator is further able to verify completeness of the complete model.

Claim 33 (Original): The computer system of claim 31 including a model segment creator able to, under control of a user, create a description of a first model element in a model segment,

create in the model segment a reference to a second model element whose description is contained in another model segment, and create a relationship between the first model element and the reference.

Claim 34 (Original): The computer system of claim 33 wherein the model segment creator is further able to display to the user visual representations of the first model element, the reference, and the relationship.

Claim 35 (currently amended 1): A method embodied on a computer readable medium for creating one of multiple model segments that are to be assembled into a complete model, the complete model including model elements from each of the multiple model elements, comprising:

receiving an indication of a first model element having a first structure;

receiving an indication of a reference to a second model element whose description is contained in another model segment and that has a second structure;

receiving an indication of a relationship between the first and second model elements that represents an alteration of at least one of the first and second structures; and

creating the one model segment by, creating a description of the first model element in the one model segment; creating an indication of the reference in the one model segment; and

creating an indication of the relationship in the one model segment, so that the description of the first model element in the one model segment can later be combined with the

description of the second model element from the another model segment in a manner consistent with the indicated relationship.

Claim 36 (Original): The method of claim 35 wherein the model elements and the relationship each have a visual representation that is displayed to a user.

Claim 37 (Original): The method of claim 35 including:  
creating the complete model by, retrieving the description of the second model element from the another model segment; and replacing the reference to the second model element with the retrieved description.

Claim 38 (Original): The method of claim 35 wherein the first model element is created by a first user, and wherein the second model element is created by a second user.

Claim 39 (canceled)

Claim 40 (currently amended): A method embodied on a computer readable medium for creating a complete model that when displayed includes visual representations of model elements from different model segments and of a relationship between the model elements, the method comprising:

receiving an indication of a first model segment that when displayed contains a visual representation of a first model element, a visual representation of a reference to a second model

element whose primary visual representation is contained in a second model segment when displayed, and a visual representation of a relationship between the visual representations of the first model element and the reference; and

creating the complete model by, retrieving from the first model segment indications of the visual representations of the first model element and the relationship;

retrieving from the second model segment an indication of the primary visual representation of the second model element; and

replacing the indication of the visual representation of the reference with the retrieved indication of the primary visual representation, so that when the complete model is displayed, the visual representation of the relationship will indicate that the relationship exists between the visual representation of the first model element and the primary visual representation of the second model element.

Claim 41 (original): The method of claim 40 wherein each of the model elements have a structure that is indicated by the visual representation for that model element.

Claim 42 (original): The method of claim 41 wherein the relationship alters the visual representations of at least one of the model elements.

Claim 43 (original): The method of claim 40 including creating the model elements and the relationship before the receiving of the indication.

Claim 44 (original): The method of claim 40 wherein the first model element is created by a first user, and wherein the second model element is created by a second user.

Claim 45 (canceled)

Claim 46 (currently amended): A method embodied on a computer readable medium for assembling a complete model that includes model elements from different model segments, the method comprising:

for each of a plurality of model segments, for each model element indicated in the model segment;

determining whether the indicated model element is a reference to another model element defined in another model segment;

when the indicated model element is determined to be a reference to another model element, determining whether the another model element has been added to the complete model; and

when it is determined that the another model element has not yet been added, adding the indicated model element to the complete model; and

when the indicated model element is determined to not be a reference to another model element, adding the indicated model element to the complete model; and

for each reference to the indicated model element that exists in the complete model, replacing the reference with the added indicated model element, so that references to other model

elements in the model segments are replaced in the complete model with the, other model elements.

Claim 47 (original): The method of claim 46 including, before the adding of indicated model element to the complete model when the indicated model element is determined to not be a reference to an external model element:

determining whether the indicated model element has been added to the complete model;  
and

when it is determined that the indicated model element has been added to the complete model, signaling a multiple definition error for the indicated model element.

Claim 48 (Original): The method of claim 46 including:

after the adding of the indicated model elements to the complete model from each of the plurality of model segments, determining for each of the added indicated model elements whether the indicated model element is a reference to an external model element; and

when the indicated model element is determined to be a reference to an external model element, signaling an unresolved reference error far the indicated model element.

Claim 49 (Original): The method of claim 46 wherein each of the model elements have a visual representation that is presented to a user when the complete model is displayed.

Claim 50 (Original):) The method of claim 46 including creating the model elements before the adding of the indicated model elements to the complete model from each of the plurality of model segments.

Claim 51 (Original): The method of claim 46 wherein the plurality of model segments are created by multiple users.

Claim 52(canceled)

Claim 53 (currently amended): A method embodied on a computer readable medium for creating a complete model by combining multiple model elements and model element relationships created in multiple model segments, comprising:

- creating a first model element and a second model element in a first model segment;
- creating a first relationship between the first model element and the second model element;

- creating a third model element in a second model segment; creating an external first model element in the second model segment, the external first model element representing the first model element;

- creating a second relationship between the external first model element and the third model element; and

- creating a complete model from the first and second model segments by, adding the first, second and third model elements and the first and second relationships to the complete model;



and substituting the first model element for the external first model element in the complete model so that the second relationship reflects a relationship between the first model element and the third model element.

Claim 54 (Original): The method of claim 53 wherein each of the model elements have a visual representation that is presented to a user when the complete model is displayed.

Claim 55 (Original): The method of claim 53 wherein the first and second model segments are created by different users.

Claims 56-61 (cancelled)

### *Allowance*

5. Claims 1-28, 31-38, 40-44, 46-51, and 53-55 are allowed over the prior art made of record.

6. The following is a statement of reasons for allowance:

The prior art of record (Bowman-Amuah -U.S. Patent No. 6,662,357 B1) does not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim), creating a first database element in a first model segment; under control of a second user, creating a second database element in a second model segment; creating an external first database element in the second model segment, the external first database element representing

the first database element; substituting the first database element for the external first database element in the complete logical database model; and creating the relationship in the complete logical database model between the second database element and the substituted first database element, as claimed in Independent claim 22.

Claims 2-7 are allowed over the prior art made of record, because they dependent from the allowed independent claim 1.

The prior art of record (Bowman-Amuah -U.S. Patent No. 6,662,357 B1) does not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim), creating the complete model by, retrieving the description of the second model element from the second model segment; and replacing the reference to the second model element with the retrieved description, as claimed in Independent claim 8.

Claims 9-24 are allowed over the prior art made of record, because they dependent from the allowed independent claim 8.

The prior art of record (Bowman-Amuah -U.S. Patent No. 6,662,357 B1) does not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim), creating the complete model by, retrieving the description of the second model element from the second model segment; and placing in the complete model the description of the first model element from the first model segment, the retrieved description from the segment

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model segment, and the indication of the relationship between the descriptions of the first and second model elements, as claimed in Independent claim 25.

Claims 26-28 are allowed over the prior art made of record, because they dependent from the allowed independent claim 25.

The prior art of record (Bowman-Amuah -U.S. Patent No. 6,662,357 B1) does not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim), a model creator able to create the complete model by retrieving the description of the second model element from the second model segment and replacing the reference to the second model element with the retrieved description, as claimed in Independent claim 31.

Claims 32-34 are allowed over the prior art made of record, because they dependent from the allowed independent claim 31.

The prior art of record (Bowman-Amuah -U.S. Patent No. 6,662,357 B1) does not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim), creating an indication of the relationship in the one model segment, so that the description of the first model element in the one model segment can later be combined with the description of the second model element from the another model segment in a manner consistent with the indicated relationship, as claimed in Independent claim 35.

Claims 36-38 are allowed over the prior art made of record, because they dependent from the allowed independent claim 35.

The prior art of record (Bowman-Amuah -U.S. Patent No. 6,662,357 B1) does not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim), receiving an indication of a first model segment that when displayed contains visual representation of a first model element, a visual representation of a reference to a second model element whose primary visual representation is contained in a second model segment when displayed; and replacing the indication of the visual representation of the reference with the retrieved indication of the primary visual representation, as claimed in Independent claim 40.

Claims 41-44 are allowed over the prior art made of record, because they dependent from the allowed independent claim 40.

The prior art of record (Bowman-Amuah -U.S. Patent No. 6,662,357 B1) does not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim), for each of a plurality of model segments, for each model element indicated in the model segment; determining whether the indicated model element is a reference to another model element defined in another model segment; replacing the reference with the added indicated model element, so that references to other model elements in the model segments are replaced in the complete model with the other model elements, as claimed in Independent claim 46.

Claims 47-51 are allowed over the prior art made of record, because they dependent from the allowed independent claim 46.

The prior art of record (Bowman-Amuah -U.S. Patent No. 6,662,357 B1) does not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim), creating a first model element and a second model element in a first model segment; creating a first relationship between the first model element and the second model element; creating a third model element in a second model segment; creating an external first model element in the second model segment, as claimed in Independent claim 53.

Claims 54-55 are allowed over the prior art made of record, because they dependent from the allowed independent claim 53.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Neveen Abel-Jalil whose telephone number is 571-272-4074. The examiner can normally be reached on 8:30AM-5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on 571-272-4038. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Neveen Abel-Jalil  
December 17, 2004

  
**CHARLES RONES**  
**PRIMARY EXAMINER**